Although a Cross-Reference to Related Application may not be required for this national phase application, if the Office should require such a cross-reference, please enter such a cross-reference on Page 1, before the heading "DESCRIPTION" (line 5), as follows:

CROSS-REFERENCE TO RELATED APPLICATION

This application is a United States national stage of PCT International Application No. PCT/GB2004/003020, with international filing date of July 12, 2004, published April 7, 2005 as WO 2005/031250, and is based upon and claims the benefit of priority of said PCT application, the entirety of which is incorporated herein by reference.

IN THE TITLE:

Please change the title from "Sensor for capacitively measuring the distance to an object" to - - Sensors - - .

REMARKS

As amended by replacing the claims of WO 2005/031250 , the present national phase patent application is believed to be ready for examination.

A declaration of the inventor will be submitted in due course .

If the examiner believes there is any issue, which could be readily resolved or other action could be taken to advance this application, such as Examiner's amendment or interview by telephone or in person, it is requested that Examiner please telephone the undersigned, who will cooperate to advance prosecution.

Any fees required which are not paid herewith are authorized to be charged to Deposit Account No. 07-1985.

Respectfully submitted,

27 March 2006
Date

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(B): ~~wherein~~ the electrode (2,102) and the shield (105) are formed entirely from an electrically conductive ceramic material and the insulating layer (104) and the housing (4,106) are formed entirely from



an electrically non-conductive ceramic material, and in that the electrically conductive and electrically non-conductive materials are selected to have substantially similar thermal expansion coefficients.

CLAIMS

1. A sensor (1,100) for capacitively measuring the distance to a stationary or passing object comprising an ~~electrically conductive ceramic~~ electrode (2, 102) for capacitively coupling with the object (11), and a housing (4, 106) that substantially surrounds the electrode (2, 102). and the shield (105), wherein (B).

~~2. A sensor according to claim 1, wherein the housing (106) is formed from an electrically non-conductive ceramic.~~

~~3. A sensor according to claim 1 or claim 2, further comprising~~ (A): a shield (105) that surrounds the electrode (102) and is electrically isolated from the electrode (102) by an insulating layer (104).

2. ~~4.~~ A sensor according to claim ~~3~~ 1, wherein the shield (105) is formed from a solid piece of electrically conductive ceramic.

3. ~~5.~~ A sensor according to claim ~~3~~ 1, wherein the shield (105a) is a deposited electrically conductive ceramic layer.

4. ~~6.~~ A sensor according to claim 3, wherein the shield (105b) is ~~a~~ deposited ~~electrically conductive ceramic or metal layer.~~ onto the inside surface of the housing (4,106).

~~7. A sensor according to any of claims 3 to 6, wherein the insulating layer (104) is formed from an electrically non-conductive ceramic.~~

5. ~~8.~~ A sensor according to any preceding claim, further comprising:

a first electrically conductive bridge (5) connected to the electrode (2) and connectable to the conductor of a transmission cable; and

a second electrically conductive bridge (7) connected to the housing (4) and connectable to the conductor of a transmission cable.

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6. ~~8.~~ A sensor according to claim ~~8~~ 5, wherein the first electrically conductive bridge (5) passes through apertures provided in the housing (4) and the second electrically conductive bridge (7).

7. ~~10.~~ A sensor according to claim ~~8~~ 5 ~~or claim 9~~ 6, wherein the second electrically conductive bridge (7) substantially surrounds the housing (4).

8. A sensor according to claim 6 wherein the second electrically conductive bridge (7) substantially surrounds the housing (4).

9. ~~8.11.~~ A sensor according to ~~any of claims 8 to 10~~ 5 to 7, further comprising an adaptor (30, 40) for connecting the second electrically conductive bridge (7) to the conductor of a transmission cable.

10. ~~9.12.~~ A sensor according to ~~any of claims 2 to 7~~ 1 to 7, further comprising:

~~a first electrically conductive bridge (107) connected to the electrode (102) and connectable to the conductor of a transmission cable;~~

~~a second electrically conductive bridge (111) connected to the housing (106) and connectable to the conductor of a transmission cable; and~~

a third electrically conductive bridge (109) connected to the shield (105) and connectable to the conductor of a transmission cable.

11. ~~10.13.~~ A sensor according to claim ~~12~~ 9 or 10, wherein the first electrically conductive bridge (107) passes through apertures provided in the insulating layer (104), the shield (105), the third electrically conductive bridge (109), the housing (106) and the second electrically conductive bridge (111), and wherein the third electrically conductive bridge (109) passes through apertures provided in the housing (106) and the second electrically conductive bridge (111).

12. ~~11.14.~~ A sensor according to ~~claim 12 or~~ claim 9 or 10, further comprising an adaptor (60,70) for connecting the second electrically conductive bridge (111) to the conductor of a transmission cable and the third electrically conductive bridge (109) to the conductor of a transmission cable.

13. A sensor according to claim 11, further comprising an adaptor (60, 70) for connecting the second electrically conductive bridge (111) to the conductor of a transmission cable and the third electrically conductive bridge (109) to the conductor of a transmission cable.

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~~12. 15~~. A sensor (100) according to claim ~~3~~, wherein one or more of the electrode (102), shield (105), insulating layer (104) and housing (106) are bonded together.

15 ~~13. 16~~. A sensor (100) according to claim ~~12~~ 14, wherein the bonding provides a hermetic seal between the one or more of the electrode (102), shield (105), insulating layer (104) and housing (106).